Planning Your Fishing Trip to the Lake

Imagine you are planning a fishing trip for you and your best friend… Ahhh! Getting up at the crack of dawn when the fish are feeding in the piece and quiet. And there's no competition from other anglers in the early morning light. It's the perfect trip!

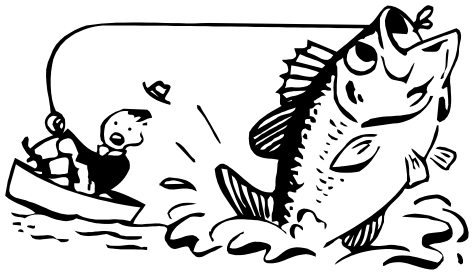
But, only if you come home with the perfect catch, not just a fish story! Before your trip, you need to find out if your favorite lake has the right conditions for the type of fish you want to catch. To find out if you lake is the right temperature and has enough oxygen, you will need to download and graph temperature and dissolved oxygen data from PEARL (Public Educational Access to Environmental Information in Maine)

Background

1. Figure out what species of fish you want to catch. To learn more about the conditions your fish like best you can surf the web http://www.rbff-education.org/cgi-bin/search/rbff.cgi?ID=981844020 For pictures and descriptions of Maine fish go to http://www.maine.gov/ifw/fishing/fishidentification.htm For more information about lakes go to http://www.maine.gov/dep/blwq/lake.htm
2. Next find out about lakes go to PEARL http://www.pearl.maine.edu
3. Click on Glossary and look up TEMPERATURE and DISSOLVED OXYGEN

Part 1 – Downloading Data

1. Now you want to look up information for your fishing lake. Click on "Text Search" located on the left-side menu bar. On the next page, type in the name of your chosen lake and select any other information you know about the location of the lake. Click Search. Then click on the name of your lake to move forward.
2. A bunch of information about your lake will come up – lake size, location, etc. At the bottom are links to more information. Click on the Water Quality picture.
3. Click on List by Data Set. From the list, click on Dissolved Oxygen and Temperature Data.
4. When asked which fields you would like – Check off:
   - Sample Station
   - Water Temperature
   - Dissolved Oxygen
5. Then select to Order Data by date. Click on Submit.



Data will be displayed and you have the option to download the data in two ways:

A. The easiest thing to do is click the "end" button to get to the most recent data page. Then you can copy one day's worth of data and paste it into your Excel or Appleworks spreadsheet. DO data is usually collected in August. For some lakes there is more data between May and September. Here is an example of the pasted data:

Threemile Pond Temp & DO Data

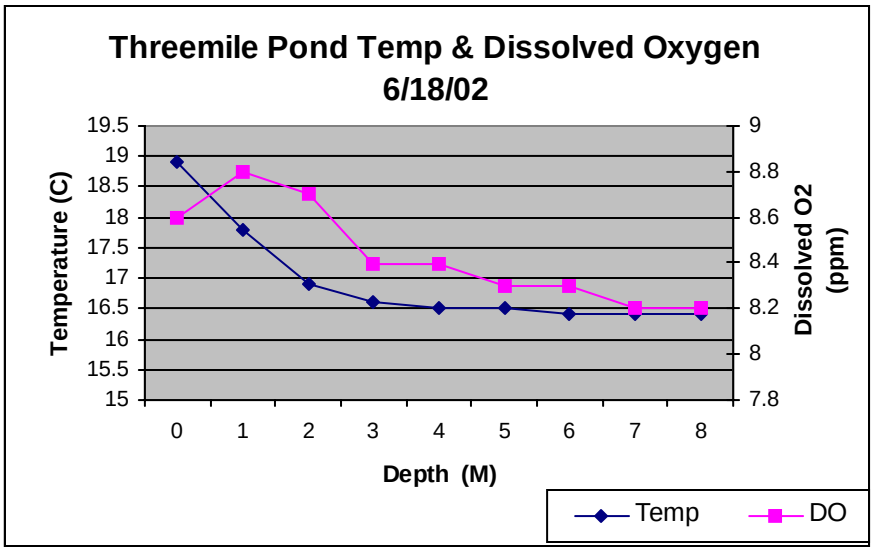
Date	Station	Temp (C)	DO (ppm)	Depth (m)	DO method
6/18/2002	1	18.9	8.6	0	M
6/18/2002	1	17.8	8.8	1	M
6/18/2002	1	16.9	8.7	2	M
6/18/2002	1	16.6	8.4	3	M
6/18/2002	1	16.5	8.4	4	M
6/18/2002	1	16.5	8.3	5	M
6/18/2002	1	16.4	8.3	6	M
6/18/2002	1	16.4	8.2	7	M
6/18/2002	1	16.4	8.2	8	M

B. If you are going to download the entire data for that lake, make sure "Zipped CVS file" is selected. This works best with PCs. Then click download. The file will be in a WINZIP format for Excel. If you Click on Open when you are asked to open or save, a window will pop up for WINZIP and ask you if you agree to their terms of agreement. Click "I agree." You will see a window with a really long file name (ex. scdrcsdrjchjmnocnidkccnampbomfh.zip) Double click on the file to open it. It will open in Excel. Before manipulating the data to graph it, save the file with a new name (ex. threemilesecchi.xls) Use Save As and make sure to change the file type to save as .xls (or whichever version of excel you are using).

Part 2 – Graphing Data

1. Look at the data you are given and see what is available. You should notice the sample station # listed, the date when data was collected, water temperature (degrees C), Dissolved Oxygen (ppm), Sample Depth (m), and DO method which is generally measured with a DO meter (M).
2. When you copy and paste or download your data, try to choose a month when you think it would be good to be on the lake and when you would plan your fishing trip.
3. When you graph data, you want to make sure that it has all been collected in the same place – or at the same sample station. Sample station 1 is the deep hole in the primary basin of the lake.
4. Then, you need to graph the temperature and dissolved oxygen (y-axis) vs. depth (x-axis). Hint: you will need to create two y-axes. In the Chart Wizard you will need to use the Series tab found in Step 2 and by using the preview button.

5. Make sure you label all of the axes and give the graph a descriptive title. You may want to make graphs of data from other days to compare. Your graph might look something like this:



Part 2 Questions to Answer

1. How does the water temperature change as you go deeper in the lake?

2. How does the dissolved oxygen change as you go deeper in the lake?

3. Is oxygen depleted (almost nothing) when you reach the bottom of your lake? What might cause this to happen?

4. What species of fish did you choose? Describe the temperature and dissolved oxygen range that your fish needs to thrive.

5. Based on this data, can your lake support the fish species you choose? Would this be a good month to plan your fishing trip?

6. What factors affect water temperature and dissolved oxygen levels?

Part 3 Extension Questions

1. What can you do to protect your lake and the fishing?

2. What does the government do to protect this lake and the fishing ?

3. See if you can find the lake depth map on the PEARL web site and use that to determine the best spot on your lake to catch cold water fish. Describe the location of this fishing spot.

4. Using the glossary from PEARL, what is the Thermocline? Epilimnion? Metalimnion? Hypolimnion? Label these on your graph if they exist. How do these layers affect fishing?

5. What is turnover? What time of year does turnover occur? What would the temperature/DO graph look like when the lake is experiencing turnover? See if you can find data collected on your lake when it was turning over and graph that. What do you think the fish do during turnover?

Final Presentation to the Class

Using the graphs and what you learned from this activity, give a persuasive presentation about when to go on your fishing trip at this lake. You may want to consider other variables like travel time, algal blooms, public access to beaches, boat ramps, fishing seasons, other attractions in the area, camping, and accommodations options.